

**SUPERCRITICAL COMPOSITIONS FOR REMOVAL
OF ORGANIC MATERIAL AND METHODS OF USING SAME**

Abstract of the Disclosure

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A method for removing organic material in the fabrication of structures includes providing a substrate assembly having an exposed organic material and removing at least a portion of the exposed organic material using a composition having at least one component in a supercritical state. The composition includes an oxidizer selected from the group of sulfur trioxide (SO₃), sulfur dioxide (SO₂),
10 nitrous oxide (N₂O), NO, NO₂, ozone (O₃), hydrogen peroxide (H₂O₂), F₂, Cl₂, Br₂, and oxygen (O₂). For example, the exposed organic material may be selected from the group of resist material, photoresist residue, UV-hardened resist, X-ray hardened resist, carbon-fluorine containing polymers, plasma etch residues, and organic impurities from other processes. The at least one component in a supercritical state
15 may be an oxidizer selected from the group of sulfur trioxide (SO₃), sulfur dioxide (SO₂), nitrous oxide (N₂O), NO, NO₂, ozone (O₃), hydrogen peroxide (H₂O₂), F₂, Cl₂, Br₂, and oxygen (O₂); preferably sulfur trioxide. Further, the composition may include a supercritical component in a supercritical state selected from the group of carbon dioxide (CO₂), ammonia (NH₃), H₂O, nitrous oxide (N₂O), carbon monoxide
20 (CO), inert gases (e.g., nitrogen (N₂), helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe); preferably carbon dioxide. Further, organic material removal compositions for performing such methods are provided.

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